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Hospitalization and Out of Pocket Expenditure: A Comparative Analysis of Maharashtra and Uttar Pradesh

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Abstract

This paper examines the patterns of hospitalization with respect to disease burden and scrutinizes the role of socio-economic and demographic factors responsible for variation in out of pocket expenditure (OOPE) in Maharashtra and Uttar Pradesh. Data were acquired from 75th round of National Sample Survey (NSS) conducted during 2017-18. Data for only hospitalization cases during the last 365 days prior to the survey was included for analysis. Different aspects of hospitalization were analysed using standard methods. OOPE was estimated and regression analysis was undertaken to explore various relationships between it and socio- economic variables. The results show a higher utilization of private healthcare facilities except for the socio-economically weaker sections of the society. Further, hospitalization rates were higher in Maharashtra than Uttar Pradesh but average medical expenditure for Uttar Pradesh was higher than Maharashtra. The major source of finance to cover the medical costs was the household's income leading to OOPE. Thus, there is a need to increase public investment in healthcare along with other initiatives. For Maharashtra, preventive healthcare facilities should be promoted and for Uttar Pradesh, pricing guidelines for medical treatment during hospitalization should be established.

Keywords**:** Hospitalization patterns, NSS, socio-economic variables, out of pocket expenditure.

I. Introduction

Hospitalization is a critical aspect of healthcare and understanding hospitalization patterns is crucial for developing effective healthcare policies and improving healthcare outcomes. Hospitalization pattern refers to the way in which people seek healthcare services when they are hospitalized. This includes the types of healthcare facilities people prefer, reasons for hospitalization, length of stay and types of medical procedures performed. Understanding hospitalization patterns is critical for improving healthcare delivery and reducing healthcare costs. While access to hospitals has improved over the past two decades, the utilization has also increased with hospitalization rates more than doubling between 1995 and 2014. They continue to rise till date with non-communicable diseases as the major concern (Central Bureau of Health Intelligence, 2018; Pandey et al., 2017). The type of hospital chosen for treatment depends on several factors, including the availability of specialized care, distance from the patient's residence, reputation of the hospital, and cost of treatment. Public hospitals are the choice of many individuals due to their lower costs, while private hospitals are preferred for their perceived better quality of care. The average expenditure on treatment varies widely, depending on the type of hospital, disease category and level of care required. Private hospitals are generally more expensive than public hospitals, and tertiary care hospitals are more expensive than secondary and primary care hospitals.

While the healthcare system in India is rapidly evolving with focus on providing affordable and accessible healthcare services to its citizens, the private sector dominates the hospitalization market in accounting for over 60 per cent of hospitalizations in 2018-19 (MoHFW, 2021). Increased use of technology in treatment of illness along with rising knowledge and expectations of the population regarding healthcare measures has led to an increase in the cost of treatment. This makes hospitalization expensive and the out of pocket expenditure (OOPE) becomes a major concern. It

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refers to the direct payment made by individuals or their families for healthcare services, which are not reimbursed by any third-party payer such as government or insurance company. It is an important aspect of healthcare financing, particularly in low- and middle-income countries where a large proportion of healthcare services are financed through out of pocket payments.

Despite the increasing availability of health insurance schemes, many people in these countries rely on out of pocket payments to access healthcare services. This places a significant financial burden on households, particularly those with lower incomes, leading to catastrophic health expenditure and poverty. Therefore, understanding the patterns and determinants of OOPE is crucial for policymakers to develop effective strategies to reduce the burden of healthcare financing on households and promote universal health coverage. For India, hospitalization accounted for approximately 50 per cent of total health expenditure, with out of pocket payments accounting for more than 60 per cent of hospitalization expenditure which can lead to catastrophic health expenditure and impoverishment (MoHFW; NHA, 2021). Over 800 million people spend at least 10 per cent of their household budget on health and nearly 100 million people are pushed into extreme poverty each year due it (WHO, 2019).

Thus, the hospitalization patterns and determinants of OOPE are important indicators of healthcare utilization and financial burden. So it is important to understand the determinants of OOPE which are multi-faceted and include factors such as socio-economic status, health status, insurance coverage, type of healthcare facility utilized, etc. (Brinda et al., 2012). In addition, lack of insurance coverage can lead to higher out-of-pocket payments (Sriram & Khan, 2020). The type of healthcare facility utilized, whether public or private, also plays a role in determining OOPE. Thus, a high proportion of OOPE for hospitalization in India highlights the need for policies and interventions to improve access to affordable healthcare and protect individuals from financial hardships.

The existing literature on hospitalization patterns in India includes various studies conducted by national and international organizations as well as research by individual scholars. While access to hospitals has improved over the past two decades, their utilization has also increased, with hospitalization rates more than doubling between 1995 and 2014 (GoI, 2018; Pandey et al., 2017). This surge in hospitalization rates has been driven by a four-fold increase in hospitalization due to non-communicable diseases (NCDs) compared with a two-fold increase in hospitalization due to communicable diseases (CDs), and is particularly prominent for infants and older adults relative to those of childbearing age (Kastor & Mohanty, 2018a; Pandey et al., 2017b). Unfortunately, the costs of hospitalization have also increased by 79 per cent in this period (Kastor & Mohanty 2018b). As health expenditure in India is mostly (63%) is paid with OOPE (NHSRC, 2019), households first rely on readily available funds such as income or savings. However, in cases of catastrophic health expenditures, households turn to resources like borrowing, selling of assets, and/or contribution from relatives or friends, henceforth referred to as distress financing (Joe, 2014; Kruk et al., 2009; Leive and Xu, 2008).

Health insurance protects the household from incurring high OOPE and incurring catastrophic health expenditure (Kastor & Mohanty, 2018a; Kruk et al., 2009; Kumar et al., 2015). Also, the estimate of OOPE on health depends on recall or reference period of the survey, number of items related to hospitalization expenditure collected and wording of questions (Kumar et al., 2015; Raban et al., 2013; WHO, 2011). However, studies have shown that the out of pocket payments on health can be computed using the disaggregated information on expenditure for each episode of hospitalization in the last 365 days in NSS which are reasonably reliable (Pandey et al., 2018; Raban et al., 2013). The average out of pocket expenditure on healthcare increased from 4.4 per cent of the household budget in 2004 to 6.9 per cent in 2014. The study also found that OOPE was higher among poorer households and those in rural areas (Garg et al., 2018).

One of the researchers also conducted a study in six states of India and found that the average OOPE on healthcare was INR 1,420 per capita per year. The study also found that catastrophic health expenditure, defined as OOPE greater than 10 per cent of household income, was higher among

poorer households and those with chronic illnesses (Prinja et al., 2019). Another study conducted as review of 38 studies on healthcare financing in India found that OOPE on healthcare was high and has been increasing over time. It also found that OOPE was higher among poor households and those in rural areas (Selvaraj & Karan, 2018).

Some scholars (Mohanty & Kishore, 2017) estimated the OOPE and Catastrophic Health Spending (CHS) on maternal health by public and private health providers in pre- and post-National Health Mission periods and found that women delivering in private health centres, residing in rural areas and poor households are more likely to face CHS. A study also found that urban maternal health care expenditure was twice than that of rural households (Mukherjee, 2013). This places a significant financial burden on households, leading to catastrophic health expenditure and poverty. Even hospitalization patterns and OOPE vary across regions and socio-economic status and hospitalization rates have increased over the years. Thus, the pattern of hospitalization and OOPE on health and healthcare have been studied in various contexts and from different perspectives but further research is needed to understand these issues more clearly so as to develop effective policies. Hence, this paper examines hospitalization patterns in terms of hospitalization rates, reasons for hospitalization, and average medical expenditures for hospitalization. It also explores the determinants of OOPE on healthcare in India and the selected states, namely Maharashtra and Uttar Pradesh.

The idea behind choosing these two states is that they are two of the most populous states in India and can provide a significant sample size. Both states are located in different regions of India. Uttar Pradesh is located in the northern part of India, while Maharashtra in the western part. This difference can affect the hospitalization patterns due to differences in culture, economy and access to healthcare. Uttar Pradesh and Maharashtra have different levels of development. Maharashtra is one of the more developed states in India, while Uttar Pradesh is one of the less developed states. This difference in development can also affect the hospitalization patterns due to differences in income levels and access to healthcare. The two have different healthcare systems. Maharashtra has a well-developed healthcare system, with several public and private hospitals and clinics (Gaikar, 2021). Uttar Pradesh, on the other hand, has a less developed healthcare system with fewer hospitals and clinics. This difference in healthcare systems can also affect the hospitalization patterns. By giving special focus to hospitalization in Uttar Pradesh and Maharashtra, the study can provide insights into the factors that affect hospitalization in different regions of India, and can help policymakers in developing policies to improve the healthcare system and reduce the burden of hospitalization on households.

II. Data and methods

Data

Information for the present study has been extracted from the unit level data of 75th round of National Sample Survey (NSS) which was conducted during July 2017 to June 2018. It covered 1,13,823 households and 5,55,115 individuals. Stratified multi-stage sampling approach was adopted for it. The sampling frame was based on the 2011 Census and was divided into rural and urban areas. In the first stage of sampling, Primary Sampling Units (PSUs) were selected from each stratum (i.e., rural and urban areas). The PSUs were selected using Probability Proportional to Size (PPS) sampling, where the size of each PSU was determined by the number of households in the PSU. In the second stage, households were selected from each selected PSU using systematic random sampling. A fixed interval was used to select households from a list of all households in the PSU. Finally, within each selected household, all members were surveyed to collect data on their consumption expenditure patterns.

The analytical sample is comprised of the subsample of hospitalized cases during the past 365 days (i.e., n = 93,925, excluding six individuals who were identified as transgender). For this study, all individuals who were hospitalized in the last 365 days preceding the survey (excluding all delivery

cases) for the treatment of various diseases have been taken for analysis. Hence, the sample size taken for India was 63,785 while 5,365 for Maharashtra and 6,046 for Uttar Pradesh.

Outcome measurements

According to the Union Ministry of Health and Family Welfare, OOPE has been defined as "payments made by an individual at the point of receiving healthcare services or goods. It is usually incurred when an individual visit to healthcare provider (clinic/hospital/pharmacy/laboratory etc.) is not provided for 'free' through a government health facility or a facility run by a not for-profit organization or if this individual is not covered under a government/private health insurance or social protection scheme". This definition is used in this paper. In order to calculate OOPE, it used direct medical expenditures (hospital stay, consultations, treatment medications and procedures, laboratory and other investigation charges) as well as non-medical expenditures (transport, food and lodging for patients and attendants). The OOPE has been estimated as follows:

OOPE (in INR) = Total medical and non-medical expenditure (in INR) – Reimbursement part of insurance (in INR)

Predictor variables

Based on the exiting literature all possible socio-economic and demographic variables such as place of residence, gender, age, caste, religion, marital status, education, principal activities of respondents and type of hospital were included as predictor variables.

Analytical approach

Univariate, bivariate and multivariate techniques have been utilised for the data analysis to accomplish the study objectives. The first section of analysis is descriptive, followed by bivariate analyses to examine the hospitalization patterns and health expenditures by respondents' socioeconomic factors and the selected states. The second step involved running separate multivariate linear regression for India and the selected states under study on OOPE (as a continuous variable) to estimate the adjusted effects of chosen covariates. The outcome variable was log transformed to satisfy the OLS assumptions and to reduce the influence of outliers. To account for the survey design which includes sampling weights with clustering and strata while estimating bivariate and multivariable statistics, weight variable was created as defined in the methodology of the NSS.

III. Results

Table 1 shows the socio-economic and demographic characteristics of persons treated as in-patient during the last 365 days excluding hospitalization for childbirth. The results show that a considerable share of people (more than 50%) living in the rural areas got treatment as inpatient in India in comparison with people living in the urban areas. The difference was the highest in Uttar Pradesh where 70.7 per cent people were treated as inpatient in rural areas in comparison with only 29.3 per cent people in urban areas. With respect to religion, more than 70 per cent people treated as inpatient were Hindus and more than 50 per cent people were currently married for India, Maharashtra and Uttar Pradesh.

Hospitalization rates by background characteristics of respondents

Table 2 presents the hospitalization rate for India and for the selected states. The hospitalization rates for India, Maharashtra and Uttar Pradesh were 29, 31 and 23 per 1000 people treated as in-patient during the last 365 days excluding hospitalization for childbirth, respectively. It can be observed from the table that for India, the hospitalization rate for urban areas is higher than rural areas. It is also a bit higher for females than males. In the age group of 60 years and above, the hospitalization rates are the highest in comparison with other age groups.

Table 1: Profile of persons treated as in patient during last 365 days in India and selected states (NSS 2017-18)

Background characteristics	India		Maharashtra		Uttar Pradesh	
	%	N	%	n	%	n
Gender						
Males	51.1	32603	50.9	2728	50.5	3050
Females	48.9	31178	49.1	2637	49.6	2995
Residence						
Rural	64.8	41326	55.5	2980	70.7	4273
Urban	35.2	22459	44.5	2385	29.3	1772
Religion						
Hindu	79.2	50539	81.4	4367	81.0	4894
Muslims	14.4	9184	10.4	560	18.3	1104
Others	6.4	4061	8.2	438	0.8	48
Caste						
STs	5.9	3763	5.5	297	0.6	36
SCs	19.1	12193	16.9	908	22.5	1362
OBCs	43.8	27937	35.4	1899	49.2	2972
Others	31.2	19891	42.1	2261	27.7	1677
Marital Status						
Never married	27.3	17410	29.7	1592	32.4	1958
Currently married	61.8	39415	58.8	3154	58.8	3557
Widowed	10.6	6750	11.3	605	8.6	519
Others	0.3	210	0.3	15	0.2	12
Educational level						
Illiterate/Literate without formal education	33.3	21208	26.9	1441	38.9	2352
Primary	26.1	16653	28.5	1529	20.3	1228
Middle	13.2	8419	13.7	735	12.9	777
Secondary	20.5	13096	23.7	1271	19.3	1164
Higher	6.9	4409	7.3	389	8.7	525
Principal activity of respondents						
Not working/studying	18.3	11662	21.7	1162	19.0	1147
Self-employed	17.6	11196	18.3	983	17.9	1084
Wage labourers (Casual/ regular)	16.1	10250	16.5	885	11.8	711
Domestic duties	30.4	19385	25.6	1371	34.5	2085
Pensioners/retirees & recipients	5.9	3775	5.1	274	2.7	161
Others	11.8	7516	12.9	690	14.2	859
Wealth Quintiles (MPCE)						
Poorest	17.3	11052	15.5	833	28.8	1741
Poorer	18.7	11916	18.4	988	23.7	1435
Middle	19.2	12237	21.6	1156	17.0	1026
Richer	21.3	13592	18.8	1010	16.1	971
Richest	23.5	14989	25.7	1378	14.5	874
Total	100	63785	100	5365	100	6046

Note**:** All 'n' are weighted. Total may not be equal due to some missing cases.

With respect to caste and religion, the sub-category 'others' has the highest rates. In the case of marital status, the sub-category 'widowed' has the highest rates of hospitalization in comparison with other sub-categories. People who are illiterate or literate without formal education have highest hospitalization rate, followed by people who have attained middle school education. With respect to principal activities of persons, the sub-category 'retirees, pensioners, remittance recipients' and the sub-category 'rich people' on the basis of quintiles class of household expenditure have the highest hospitalization rates in comparison with their respective counterparts.

For Maharashtra, the hospitalization rate was higher in urban areas than rural areas. It was also higher in females than males. In the age group of 60 years and above, the hospitalization rate is the highest, followed by 45-59 years of age group. SCs have the highest hospitalization rate with respect to other categories. Regarding religion, the sub-category 'others' has the highest hospitalization rate,

Table 2: Hospitalization rates (per 1000 persons treated as in-patient during the last 365 days) corresponding to each background characteristics of respondents in India and selected states, NSS 2017-2018

Background characteristics	India	Maharashtra	Uttar Pradesh
Place of residence			
Urban	34	33	31
Rural	26	31	21
Gender			
Male	28	31	22
Female	29	33	24
Age group (in years)			
0-4	27	40	22
5-14	14	18	11
15-29	19	19	17
30-44	26	25	24
45-59	42	42	33
60+	86	78	69
Caste			
STs	18	19	13
SCs	27	42	19
OBCs	27	29	19
Others	34	32	37
Religion			
Hindu	28	30	21
Muslim	29	26	19
Others	38	59	34
Marital status			
Never married	17	22	13
Currently married	33	34	28
Widowed	56	63	48
Divorced and separated	35	26	45
Education level			
Illiterate/literate without formal education	33	41	25
Primary level	24	31	15
Middle	26	29	20
Secondary	25	27	22
Higher	23	26	24
Principal activities of the person			
Not working/studying	18	25	13
Self-employed or household enterprise	27	28	20
Wage labourer (causal/regular)	25	25	22
Domestic duties	32	34	27
Retirees, pensioners , remittance recipients	89	92	67
Others	45	53	39
Wealth Quintiles (MPCE)			
Poorest	21	25	15
Poor	27	29	18
Middle	32	32	25
Rich	34	32	36
Richest	32	34	44
Total	29	31	23

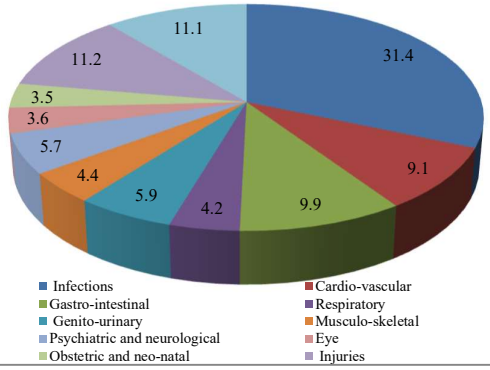
followed by Hindus. In the case of marital status, widowed persons have the highest hospitalization rate, followed by currently married. People who are illiterate or literate without formal education have the highest hospitalization rate, followed by those who have primary education. Retirees, pensioners, remittance recipients and richest people who fall under the quintile class of household expenditure have the highest hospitalization rates.

A similar type of trend was observed in Uttar Pradesh. The hospitalization rate was the highest among people belonging to urban areas, being female, belonging to age group 60 years or more, who are retirees, pensioners, remittance recipients and belonging to the richest wealth quintile. But with respect to religion 'Others' has the highest hospitalization rate and in the case of marital status widowed persons have the highest hospitalization rate followed by divorced or separated persons. People who are illiterate or literate without formal education have the highest hospitalization rate followed by those who have attained higher education. Also, the hospitalization rates are higher for Maharashtra in comparison with Uttar Pradesh at the aggregate level.

Reasons for hospitalization by ailment categories for hospitalization cases

The second aspect for analysis of hospitalization pattern is to capture the disease pattern prevailing in the country and for this the reasons as to why people are getting hospitalized should be identified. The graphs below (Figures 1, 2 and 3) show the break-up of hospitalization cases by ailment category for India, Uttar Pradesh and Maharashtra.

Figure 1: Percentage break-up of hospitalization cases by ailment category for India



At the national level, out of the number of hospitalization cases, 31.4 per cent were admitted due to infectious diseases, 11.2 per cent for injuries, 9.9 per cent for gastrointestinal, 9.1 per cent for cardiovascular diseases followed by others (5.9%). For Maharashtra, 32.4 per cent cases were admitted due to infectious diseases, 12.3 per cent for injuries and 9.9 per cent for gastrointestinal and 10.4 per cent for cardiovascular diseases. Uttar Pradesh has also shown the same for hospitalization. The major reason for hospitalization was infectious diseases (34%), followed by injuries (12.8%), gastro-intestinal diseases (12.2%) and cardiovascular (6.4%).

Figure 2: Percentage break-up of hospitalization cases by ailment category for Uttar Pradesh

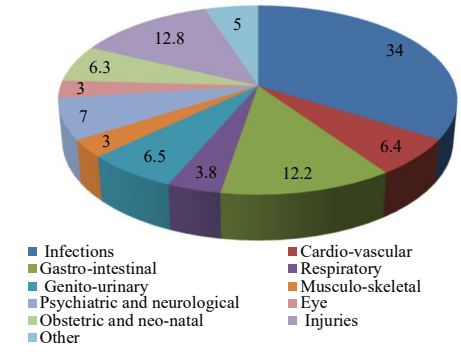


Figure 3: Percentage break-up of hospitalization cases by ailment category for Maharashtra

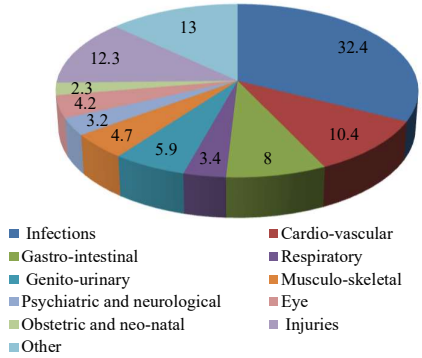


Table 3: Percentage break-up of hospitalization cases during the last 365 days by type of health facility corresponding to the respondents' background characteristics for India and selected states, NSS 2017-18.

Background characteristics	India			Maharashtra			Uttar Pradesh		
	Govt./ public hospital	Charitable/ trust/NGO hospitals	Private hospital	Govt./ public hospital	Charitable/ trust/NGO hospital	Private hospital	Govt./ public hospital	Charitable/ trust/NGO hospital	Private hospital
Place of residence									
Urban	35.1	3.9	61.6	18.0	5.2	76.8	23.8	2.2	74.0
Rural	45.6	2.4	52.3	25.5	3.1	71.4	28.2	2.5	69.3
Gender									
Male	40.7	2.8	56.5	20.7	4.4	74.9	26.7	1.9	71.4
Female	42.8	2.6	54.6	23.6	3.8	72.6	27.2	3.0	69.9
Age group (in years)									
0-4	34.9	2.3	62.9	15.4	2.5	82.1	18.1	3.1	78.8
5-14'	44.7	2.1	53.2	18.4	2.6	79.0	28.8	1.1	70.1
15-29	45.9	2.1	52.1	26.2	3.8	70.1	33.1	1.3	65.6
30-44	41.7	2.5	55.8	21.2	3.3	75.2	24.5	2.8	72.8
45-59	41.7	2.7	55.6	24.8	4.2	71.0	23.3	1.2	75.5
60+	39.0	4.0	57.1	21.5	6.1	72.5	28.0	6.1	65.9
Caste									
STs	64.2	1.9	33.9	51.1	1.3	47.6	29.8	0.0	70.2
SCs	51.0	2.6	46.4	26.0	4.3	69.7	35.9	2.0	62.1
OBCs	38.5	2.7	58.8	20.6	3.0	76.4	27.9	2.3	69.9
Others	36.3	3.1	60.7	18.1	5.2	76.6	17.9	3.1	79.0
Religion									
Hindu	41.4	2.4	56.2	22.1	3.7	74.1	26.9	2.2	70.9
Muslim	47.8	2.9	49.2	25.2	5.4	69.4	27.8	2.7	69.5
Others	32.0	6.0	62.0	18.4	5.7	76.0	7.1	17.6	75.3
Marital status									
Never married	41.7	2.3	56.1	17.3	3.0	79.7	25.9	1.7	72.3
Currently married	41.7	2.7	55.6	23.2	4.2	72.6	27.1	2.4	70.5
Widowed	41.9	4.1	54.0	29.8	5.9	64.2	29.6	5.6	64.8
Divorced and separated	47.6	3.3	49.2	8.8	10.9	80.2	14.7	0.0	85.4
Education									
Illiterate/literate without formal education	45.6	2.6	51.9	25.9	3.6	70.6	29.9	3.0	67.1
Primary	46.6	2.7	50.7	26.0	3.0	70.9	25.6	2.6	71.9
Middle	45..2	2.7	52.1	22.5	3.3	74.2	31.3	2.8	65.9
Secondary	34.0	2.9	63.1	17.7	4.9	77.7	21.5	1.4	77.2
Higher	21.8	2.6	75.6	7.0	8.7	84.2	22.3	1.4	76.3
Principal activities of the person									
Not working/studying	42.3	2.3	55.4	19.9	3.0	77.1	22.1	1.2	76.7
Self-employed or household enterprise	38.2	2.8	59.0	18.4	4.4	77.2	23.5	2.5	74.0
Wage labourer (causal/regular)	46.1	2.6	51.3	29.6	4.5	65.9	34.9	0.6	64.5
Domestic duties	43.2	2.5	54.3	21.4	3.3	75.3	29.3	2.8	68.0
Retirees', pensioners , remittance recipients	35.4	5.0	59.5	25.3	11.3	63.5	19.1	4.1	76.8
Others	39.4	3.0	57.7	21.9	3.5	74.6	26.8	4.4	68.8
Wealth Quintiles (MPCE)									
Poorest	51.5	2.2	46.4	31.0	2.7	66.4	35.0	2.4	62.6
Poor	50.4	2.2	47.4	28.7	2.6	68.7	32.7	1.2	66.1
Middle	43.6	2.8	53.6	18.7	3.8	77.5	21.7	3.5	74.9
Rich	40.7	2.8	40.7	20.5	3.9	75.6	19.1	3.2	77.7
Richest	27.0	3.4	69.6	16.2	6.4	77.4	16.1	2.4	81.5
Total	41.7	2.7	55.6	22.1	4.1	73.8	26.9	2.4	70.7

Note**:** Total may not tally l due to some missing cases.

Type of health facility chosen by respondents corresponding to their background characteristics

The third aspect for an analysis of hospitalization pattern is the type of health facility which the people chose for their treatment of their diseases and ailments. Table 3 shows that at the national level, among the total hospitalized cases, 55.6 per cent people were hospitalised in private hospitals,

41.7 per cent in government hospitals and 2.7 per cent charitable/trust/NGO-run hospitals. A similar pattern was observed in Maharashtra and Uttar Pradesh: with 73.8 per cent in private, 22.1 per cent in government and 4.1 per cent in charitable/trust/NGO-run hospitals in Maharashtra and 70.7 per cent in private hospitals, 26.9 per cent in government and 2.4 per cent of the cases prefer to go in charitable/trust/NGO-run hospitals in Uttar Pradesh. Further, the pattern was the same across all the socio-economic and demographic characteristics of the respondents at the national as well as state level, though significant differentials were observed within the categories. For example, at the national level with respect to the variables place of residence, gender, age group, religion (except Muslims), marital status (except divorced and separated persons), education and principal activity, more than 50 per cent people were hospitalized in private hospitals, followed by public or government-run hospitals and charitable or trust or NGO-run hospitals at national level as well as in Maharashtra and in Uttar Pradesh.

A slightly higher proportion of people belonging to ST (64.2%) and SC (51.2%) categories were hospitalised in the government hospitals at national level. Similarly, 51.1 per cent of the people were hospitalised in the government hospital in Maharashtra among ST category. In the case of wealth quintiles at the national level, 51.5 per cent and 50.4 per cent of hospitalization cases among the poorest and poor categories were hospitalized in public or government-run hospitals.

Expenditures on hospitalization during stay at hospitals

The fourth aspect for analysis of hospitalization pattern is the expenditure borne by people for their treatment in hospitals. The average medical expenditure incurred for treatment during stay at a hospital per case for an ailment for rural India in public hospitals was INR 4290 and for private hospitals INR 27347. For urban areas, it was INR 4837 and INR 38822 respectively. For Maharashtra in rural areas, average medical expenditure incurred for treatment during stay per case in a public hospital was INR 5606 and for a private hospital INR 23281, whereas for Uttar Pradesh it was INR 6914 and INR 29768 respectively. For Maharashtra in urban areas, average medical expenditure incurred for treatment during stay at a hospital per case in a public hospital was INR 7189 and for a private hospital INR 42540 whereas for Uttar Pradesh it was INR 10239 and INR 40706 respectively. Thus, the average medical expenditure in Uttar Pradesh is higher for the cases of hospitalization excluding childbirth during the last 365 days.

Table 4: Average medical expenditure (in INR) incurred for treatment during stay per case of hospitalization during the last 365 days by type of health facility corresponding to the respondents' place of residence for India and selected states, NSS 2017-18

Place of residence	India			Maharashtra			Uttar Pradesh		
	Govt./ public hospital	Charitable/ trust/NGO hospitals	Private hospital	Govt./ public hospital	Charitable/ trust/NGO hospital	Private hospital	Govt./ public hospital	Charitable/ trust/NGO hospital	Private hospital
Urban	4837	26475	38822	7189	36612	42540	10239	33339	40706
Rural	4290	16676	27347	5606	19383	23821	6914	23144	29768
Total	4452	20135	31845	6177	27096	32566	7765	26089	33071

The major source of finance to cover medical expenditure for hospitalization cases

The Tables 5, 6 and 7 show the sources of finance as percentage breakup for hospitalization for India, Maharashtra and Uttar Pradesh. At the national level, the major source of finance for hospitalization was the household's income or savings (81.5%), followed by borrowings (11.4%), contributions from friends and relatives (3.5%), other sources (3.3%) and sale of physical assets (0.3%). The patterns are the same across all the demographic and socio-economic subgroups of the population. Borrowings, which is one of the major sources of finance for hospitalization, is more prevalent in rural areas (13.1%), among males (12.3), followers of Hindu religion (11.8%), illiterate persons (13.5%), persons working as wage labours (15.2%), and belonging to poor (13.3%) and middle wealth quintiles (13.7%). Around 2 to 5 per cent of the hospitalization costs were covered by

contribution from friends and relatives except in the cases of age group 60 years and above (6.3%), divorced and separated people (8.9%) and retirees, pensioners and remittance recipients.

Table 5: Major sources of finances for coverage of health expenditures for hospitalization cases during last the 365 days in India, 2017-2018

Background characteristics	Household income or savings	Borrowings	Sale of physical assets	Contributions by friends and relatives	Others
Place of residence					
Urban	84.2	8.4	0.3	3.8	3.3
Rural	80.1	13.1	0.3	3.3	3.2
Gender					
Male	80.2	12.3	0.3	3.6	3.7
Female	82.9	10.6	0.3	3.3	2.9
Age group (in years)					
0-4	82.8	12.3	0.3	2.4	2.3
5-14'	83.8	10.5	0.1	1.9	3.7
15-29	82.4	11.6	0.4	2.8	2.8
30-44	80.5	13.6	0.3	2.8	2.8
45-59	81.4	11.3	0.3	3.1	3.9
60+	80.3	9.4	0.4	6.3	3.7
Caste					
STs	84.5	9.1	0.2	3.1	3.2
SCs	79.6	13.6	0.5	3.8	2.6
OBCs	80.2	13.1	0.3	3.2	3.3
Others	83.9	8.3	0.3	3.7	3.8
Religion					
Hindu	81.6	11.8	0.3	3.2	3.1
Muslim	81.0	10.1	0.3	4.0	4.6
Others	81.5	10.5	0.4	5.0	2.6
Marital status					
Never married	82.4	11.4	0.3	2.7	3.2
Currently married	81.4	11.6	0.3	3.3	3.3
Widowed	80.0	10.6	0.3	6.0	3.1
Divorced and separated	68.7	14.7	1.9	8.9	5.9
Education level					
Illiterate/literate without formal education	78.7	13.5	0.4	4.0	3.5
Primary	81.9	11.0	0.3	3.1	3.7
Middle	82.2	11.8	0.3	3.2	2.6
Secondary	82.8	10.4	0.3	3.5	3.0
Higher	88.6	5.7	0.2	2.3	3.2
Principal activities of the person					
Not working/studying	81.8	11.0	0.2	3.6	3.3
Self-employed or household enterprise	82.3	11.6	0.5	2.7	2.9
Wage labourer (causal/regular)	77.1	15.2	0.3	2.7	4.7
Domestic duties	84.0	9.9	0.3	3.1	2.8
Retirees, pensioners, remittance recipients	78.4	7.8	0.1	9.2	4.5
Others	80.9	12.6	0.4	3.5	2.6
Wealth Quintiles (MPCE)					
Poorest	82.4	11.1	0.5	2.6	3.5
Poor	80.3	13.3	0.3	2.9	3.4
Middle	78.9	13.7	0.3	4.0	3.2
Rich	81.1	11.8	0.3	3.8	3.1
Richest	84.4	8.1	0.4	3.9	3.3
Total	81.5	11.4	0.3	3.5	3.3

For Maharashtra, the major source of finance for hospitalization cases was household's income or savings (88.8%), followed by borrowings (6.6%), contributions from friends and relatives (2.93%), other sources (1.6%) and sale of physical assets (0.1%). The second major source of finance is Borrowings which is more prevalent in rural areas (8.9%), among SCs (7.6%), Muslims (11.4%), divorced and separated (23.8%), illiterate persons (8.3%), not working persons/studying (8.5%) and belonging to poor and middle wealth quintiles (9.6%). Around 2 to 4 per cent of the hospitalization costs were covered by contributions from friends and relatives except in the case of people who

attained middle level education (5.4%) and retirees, pensioners and remittance recipients (7.6%). Sale of physical assets has less contribution across most of the background characteristics of the respondents to cover the hospitalization costs. However, in the case of marital status, the sub-category of divorced and separated people (16.6%), widowed persons (4.7%), and the age group of 60 years and above (4.5%) and with respect to caste, the sub-categories of SCs (3.6%) and STs (5.9%) have a significant share of sale of physical assets for covering hospitalization costs.

Table 6: Major sources of finance for coverage of health expenditures for hospitalization cases during the last 365 days in Maharashtra, 2017-2018

Background characteristics	Household income or savings	Borrowings	Sale of physical assets	Contributions by friends and relatives	Others
Place of residence					
Urban	90.2	3.8	0.2	3.5	2.3
Rural	87.6	8.9	0.1	2.5	1.0
Gender					
Male	89.2	6.7	0.2	2.6	1.4
Female	88.4	6.6	0.1	3.3	1.7
Age group (in years)					
0-4	91.1	7.5	0.1	0.6	0.7
5-14'	88.1	9.6	0.0	1.6	0.6
15-29	86.8	7.7	0.1	2.7	2.5
30-44	90.2	6.3	0.3	2.4	0.7
45-59	87.5	6.3	0.2	3.5	2.6
60+	89.6	4.6	4.5	0.0	1.4
Caste					
STs	86.1	6.7	5.8	0.0	1.3
SCs	87.5	7.6	3.6	0.0	1.4
OBCs	88.5	6.7	0.3	2.9	1.7
Others	89.8	6.2	0.1	2.4	1.6
Religion					
Hindu	89.2	6.3	0.1	2.9	1.4
Muslim	83.4	11.4	0.2	2.4	2.7
Others	90.8	4.1	3.7	0.0	1.4
Marital status					
Never married	87.9	8.9	0.1	2.3	0.9
Currently married	89.0	5.9	0.1	3.0	2.0
Widowed	90.5	3.7	4.7	0.0	1.1
Divorced and separated	59.6	23.8	16.6	0.0	0.0
Education level					
Illiterate/literate without formal education	86.6	8.3	0.2	3.9	1.0
Primary level	90.4	6.4	0.0	2.1	1.1
Middle	88.1	5.4	0.2	5.4	1.0
Secondary	88.9	6.7	0.2	2.0	2.3
Higher	91.2	3.2	0.0	1.2	4.4
Principal activities of the person					
Not working/studying	88.4	8.5	0.1	2.1	0.8
Self-employed or household enterprise	89.8	7.2	0.3	1.8	1.0
Wage labourer (causal/regular	86.2	6.9	0.2	3.8	2.9
Domestic duties	90.1	4.6	0.0	3.6	1.8
Retirees, pensioners, remittance recipients	85.4	3.0	0.4	7.6	3.6
Others	89.8	7.8	0.1	1.7	0.6
Wealth Quintiles (MPCE)					
Poorest	90.9	5.5	0.0	2.3	1.2
Poor	85.6	10.1	0.1	3.3	1.0
Middle	86.5	9.6	0.3	3.0	0.7
Rich	88.6	5.7	0.2	3.9	1.7
Richest	91.8	3.0	0.1	2.3	2.9
Total	88.8	6.6	0.1	2.9	1.6

For Uttar Pradesh, the major sources of finance of hospitalization cases were households' income or savings (82.6%), followed by borrowings (11.98%), contributions from friends and relatives (3.3%), other sources (1.8%) and sale of physical assets (0.3%). Borrowing is again prevalent in rural areas more than in urban areas. In all age groups (except 45 to 59 and 60 years and

Table 7: Major sources of finance for coverage of health expenditure for hospitalization cases during the last 365 days in Uttar Pradesh, 2017-2018

Background characteristics	Household income or savings	Borrowings	Sale of physical assets	Contributions by friends and relatives	Others
Place of residence					
Urban	84.3	10.1	0.2	3.0	2.5
Rural	81.9	12.8	0.4	3.4	1.6
Gender					
Male	81.8	12.4	0.2	3.4	2.2
Female	83.4	11.6	0.4	3.1	1.5
Age group (in years)					
0-4	84.7	12.2	0.0	2.4	0.7
5-14'	85.2	11.3	0.0	3.3	0.2
15-29	81.3	13.7	0.2	2.2	2.6
30-44	77.6	15.5	0.7	4.7	1.5
45-59	85.8	8.8	0.2	3.5	1.6
60+	84.5	8.8	0.5	3.0	3.2
Caste					
STs	74.7	10.0	0.0	0.6	14.8
SCs	79.3	15.1	0.7	2.9	2.0
OBCs	82.3	12.4	0.2	3.2	1.9
Others	86.1	8.7	0.2	3.7	1.4
Religion					
Hindu	83.6	11.3	0.3	3.2	1.6
Muslim	78.1	15.2	0.2	3.4	3.1
Others	89.3	8.8	0.0	1.9	0.0
Marital status					
Never married	83.9	12.1	0.1	2.8	1.0
Currently married	81.6	12.2	0.4	3.4	2.4
Widowed	85.3	10.4	0.2	3.0	1.2
Divorced and separated	61.4	0.0	0.0	38.6	0.0
Education level					
Illiterate/literate without formal education	79.3	14.4	0.5	3.4	2.4
Primary	84.4	12.3	0.4	1.9	1.1
Middle	79.2	14.2	0.2	4.3	2.1
Secondary	85.0	9.1	0.1	4.4	1.4
Higher	93.1	3.7	0.2	1.5	1.6
Principal activities of the person					
Not working/studying	83.8	12.2	0.2	3.3	0.5
Self-employed or household enterprise	86.3	8.3	0.7	3.2	1.5
Wage labourer (causal/regular)	73.6	19.8	0.2	1.7	4.8
Domestic duties	83.1	10.9	0.3	3.8	1.9
Retirees, pensioners, remittance recipients	88.9	1.2	0.2	8.6	1.3
Others	81.4	14.6	0.2	2.2	1.6
Wealth Quintiles (MPCE)					
Poorest	84.8	9.4	0.5	3.3	2.0
Poor	80.1	15.8	0.5	2.7	0.9
Middle	81.1	13.6	0.1	3.3	2.0
Rich	77.3	15.1	0.2	5.0	2.4
Richest	90.2	5.4	0.0	2.1	2.3
Total	82.6	12.0	0.3	3.3	1.8

above), borrowing finances more than 10 per cent of hospitalization costs with highest in the age group of 30-44 years (15.5%). With respect to caste, SCs had the highest percentage of hospitalization costs which were covered through borrowings (15.1%), followed by OBCs (12.4%), STs (10%) and others (8.7%). Further, borrowing was higher among Muslims (15.2%), among illiterate person (14.4%), who were wage labourer (19.8%) and belonging to the poor wealth quintile (15.8%). Further, the contribution by friends and relatives as a source of finance for hospitalization was the highest among divorced and separated (38.6%). Sale of physical assets has less contribution across most of the background characteristics of the respondents to cover the hospitalization costs. Other sources of finances contributed around one to three per cent for the coverage of hospitalization costs except for STs and wage labourers where it was 14.8 per cent and 4.8 per cent, respectively.

Coverage of health expenditures for hospitalization

Table 8 shows the coverage of insurance scheme for health expenditure support among the people who hospitalised in the last 365 days for ailment in India, Maharashtra and Uttar Pradesh. Results shows that a large proportion of hospitalised people were not covered under any health insurance scheme (76.9% for India, 90% for Maharashtra and 96% for Uttar Pradesh). Further, 16.8 per cent persons were covered under government sponsored scheme, 2.1 per cent under Government/PSU as an employer, 1.4 per cent by an employer supported scheme, 2.3 per cent were arranged by households with insurance companies and 0.7 per cent were covered under other schemes at the national level. Similarly, in Maharashtra, 1.3 per cent persons were covered by a Government-sponsored scheme, 2.4 per cent under Government/PSU as an employer, 1.6 per cent were covered by employer supported scheme, 4.3 per cent were arranged by households with insurance companies and 0.6 per cent covered under other schemes. In Uttar Pradesh, 0.4 per cent persons were covered under a government-sponsored scheme, 1.1 per cent covered under government/PSU as an employer, 0.9 per cent an employer-supported scheme, 0.8 per cent arranged by households with insurance companies and 0.9 per cent under other schemes.

Table 8: Coverage of health expenditures for hospitalization cases during the last 365 days in India, Maharashtra and Uttar Pradesh, 2017-2018

Schemes	India	Maharashtra	Uttar Pradesh
Government-sponsored	16.8	1.3	0.4
Government/PSU as an employer	2.1	2.4	1.1
Employer supported	1.4	1.6	0.9
Arranged by households with insurance companies	2.3	4.3	0.8
Others	0.7	0.6	0.9
Not covered	76.9	90.0	96.0
Total	100	100	100

Out of Pocket Expenditure (OOPE)

Literature suggests that various socio- economic variables have an effect on the OOPE in some or the other way and the effects may vary at national and state levels. Table 9 presents the bivariate analysis by different socio-economic characteristics for mean OOPE of persons treated as in patients during the last 365 days. At the national level, the mean OOPE for hospitalization was INR 19,568, whereas, 25,020 for Maharashtra and 25,181 for Uttar Pradesh. There were differentials in OOPE across all the demographic and socio-economic characteristics of the population at national as well as state levels. The mean OOPE was higher in urban areas, among males, persons belong to other caste category, followers of other religion, among person with higher level of education and among retirees, pensioners and remittances recipients at national and state levels. Further, the mean OOPE was higher for Muslims in Maharashtra and for other religions in Uttar Pradesh. It was higher in private hospitals for India and Uttar Pradesh and it was highest in trust/NGO-run hospitals for Maharashtra.

Table 10 shows the OLS regression of OOP payment for hospitalisation care by socio-economic characteristics in India and selected states. The probability of incurring OOPE on hospitalisation cases for last 365 days was 8 per cent, 7 per cent and 10 per cent higher among the resident of urban areas than rural areas in India, Maharashtra and Uttar Pradesh, respectively. The OOPE was significantly less by 14 per cent, 23 per cent and 22 per cent for females than male patients in India, Maharashtra and Uttar Pradesh respectively. Age showed a positive relationship with OOPE for India and selected states. Patients belonging to SCs, STs and OBCs categories showed significantly lower OOPE compared to 'others' caste group. At India level, the OOPE was significantly higher among other religious category than Hindus, but it is inverse for Maharashtra and Uttar Pradesh. The OOPE for hospitalised cases was significantly lower among Muslim and other religion than Hindus. At the national level, the OOPE was higher among currently married and divorced and separated than never married, and same patterns is observed in Maharashtra. However,

in Uttar Pradesh, the OOPE was significantly higher among currently married, widowed and divorced and separated individuals than never married. OOPE was negatively associated with education level at India and for the selected states. Not working/studying retirees, pensioners, remittances recipients had higher OOPE than self-employed. The OOPE was higher among the patients who prefer private or NGO-run hospitals than public hospital.

Table 9: Mean OOPE (in INR) by background characteristics of the respondents in India, Maharashtra and Uttar Pradesh, 2017-18

Explanatory variables	Mean OOPE		
	India	Maharashtra	Uttar Pradesh
Place of residence			
Rural	17617	20560	23469
Urban	23158	30602	29309
Gender			
Male	22169	28977	26094
Female	16851	20923	24262
Age group (in years)			
<17	12867	18915	17329
18-29 years	15233	18651	21499
30-44 years	19749	25032	24319
45-59 years	22036	24410	35976
60 and above	26210	35353	29114
Caste			
STs	13112	13161	11495
SCs	16865	17933	23896
OBCs	18591	24469	22631
Others	23823	29887	31031
Religion			
Hindu	20039	25082	26293
Muslim	15963	29189	19326
Others	21847	19076	46312
Marital status			
Never married	14049	19906	18867
Currently married	22080	28714	27815
Widowed	18674	18481	31134
Divorced and separated	33738	54456	17003
Education level			
Illiterate	15679	21696	21752
Literate without formal education	16489	17975	14416
Primary	17067	18775	25025
Middle	18918	24406	22341
Secondary	24036	31202	30004
Higher	35527	43365	34979
Principal activities of the person			
Not working/studying	16848	19697	24472
Self-employed or household enterprise	24027	28851	29592
Wage labourer (causal/regular)	18004	17895	23773
Domestic duties	17606	23242	23926
Retirees, pensioners, remittance recipients	32181	62915	36378
Others	17993	26122	22676
Type of hospital			
Public hospitals	6092	8879	9187
Private hospitals	29425	29023	31072
Trust/NGO-run hospitals	24612	40255	30931
Total mean expenditure	19568	25020	25181

Table 10: Multivariate regression model for predicting the effect of selected background characteristics on out of pocket expenditure (OOPE) for hospitalization cases during the last 365 days for India and selected states, NSS 2017-2018

Explanatory variables	OOPE coefficients		
	India	Maharashtra	Uttar Pradesh
Place of residence			
Rural®			
Urban	0.080***	0.0707*	0.105***
Gender			
Male®			
Female	-0.147***	-0.233***	-0.221***
Age group (in years)			
<17 years	-0.242***	-0.230***	-0.335***
18-29 years®			
30-44 years	0.233***	0.183**	0.344***
45-59 years	0.314***	0.291***	0.381***
60 and above	0.426***	0.546***	0.402***
Caste			
STs	-0.188***	-0.360***	-0.416**
SCs	-0.077***	-0.090	-0.227***
OBCs	-0.069***	-0.091**	-0.015
Others®			
Religion			
Hindu®			
Muslim	0.013	-0.010	-0.123***
Others	0.153***	-0.183**	-0.065***
Marital status			
Never Married®			
Currently married	0.022	0.092	-0.057
Widowed	-0.126***	-0.104	-0.206**
Divorced and separated	0.086	0.939***	-0.186
Education level			
Illiterate	-0.235***	-0.225***	-0.169***
Literate without formal education	-0.080*	-0.066	-0.387**
Primary	-0.184***	-0.965*	-0.114**
Middle	-0.068***	0.009	-0.095
Secondary®			
Higher	0.075***	0.039	0.050
Principal activities of the person			
Not working/studying	0.078***	0.123	0.186***
Self-employed or household enterprise®			
Wage labourer (causal/regular)	-0.207***	-0.125**	-0.055
Domestic duties	-0.001	0.045	0.026
Retirees, pensioners, remittances recipients	0.017	-0.026	0.125
Others	0.151***	0.217***	0.147**
Type of hospital			
Public hospitals®			
Private hospitals	1.711***	1.956***	1.540***
Trust/NGO-run hospitals	1.147***	1.608***	1.245***

Note: ®: reference category. ***p<0.01, **p<0.05, *p<0.1.

IV. Discussion and conclusion

The present study establishes vast differences in hospitalization rates among different social and economic classes of people. At the national level these rates are higher among females and elderly population in both rural and urban areas. The results indicate that hospitalizations rates for elderly will increase in future due to increase in the ageing population and the necessity for more healthcare facilities (Sengupta et al., 2015). Lack of education and awareness among illiterate and people with low educational background has led to poor health outcome and thus higher

hospitalization rates for them. The richer section of the society has a prevalence of chronic diseases due to lifestyle factors leading to higher hospitalization rates in comparison with the poor and middle class people. Also, hospitalization rate for Maharashtra is higher than Uttar Pradesh. It is likely due to a combination of factors including high population density, urbanization, co-morbidities, and high testing and reporting (Mahapatra et al., 2022). The lower hospitalization rate in Uttar Pradesh is likely due to a younger and more rural population (70.7%), under-reporting of hospitalization cases and inadequate healthcare facilities for treatment of illness (GoUP, 2019).

Reasons for a majority of the hospitalization cases in India, Maharashtra and Uttar Pradesh were infectious diseases and injuries. This finding is in line with the studies published on Global Burden of Diseases which reported that infectious diseases such as tuberculosis, malaria, and dengue are major contributors to hospitalization in India (Bhutta et al., 2014). These studies also reported that poor hygiene and sanitation along with malnutrition were major risk factors for infectious diseases. But the third major cause of hospitalization in Maharashtra was cardiovascular diseases, whereas in the case of Uttar Pradesh it was gastro-intestinal diseases. This may happen because Maharashtra being a developed state, people tend to follow modern lifestyle pattern whereas in Uttar Pradesh being a less developed state with a majority living in rural patches, there is a high chance of people living in unhealthy environment.

There is a noticeably higher utilization of private healthcare facilities for treatment of diseases at an aggregate level except for the socio-economically weaker sections of the society because a majority of them reported to be hospitalized in government or public-run hospitals. This finding is similar in the case of Maharashtra and Uttar Pradesh. While private hospitals may be viewed as providing better quality of care, the high cost of treatment and lack of accessibility make them beyond reach for many people having weaker socio-economic status in the society (Selvaraj & Karan, 2012).

The average medical expenditure for hospitalization cases for any ailment in rural India in private hospitals is approximately 6.4 times higher than the average medical expenditure in government-run hospitals. For urban India, it is approximately eight times higher than the average medical expenditure in government-run hospitals. Uttar Pradesh has a high average medical expenditure for hospitalization cases for any ailment irrespective of the place of residence in comparison with Maharashtra. The major source of finance for hospitalization is household income or savings, followed by borrowings. This can lead to poverty debt traps among the poor and severely affect the standard of living of the people. In both states and even at the national level, a majority of the people among all quintile classes of household expenditure are not covered under any insurance scheme. Hence, they pay-out their hospitalization expenses from their own pockets. This leads to the problem of out of pocket health expenditure (Yadav et al., 2021). An important insight is that trends of both the states matches with the trend at the national level. Therefore, it becomes important to scrutinize the role of socio-economic determinants for hospitalization cases because all these have an effect on OOPE.

The study indicates that for India as well as for our studied states the place of residence is a significant determinant of OOPE. It is higher in urban areas because of higher cost of living, income, lifestyle factors and access to healthcare facility in comparison with rural areas (Mahal et al., 2015). Due to gender disparity and differences in seeking healthcare facilities, health resources are firstly provided to males then females. Age group also affects OOPE. Children under 17 years have fewer healthcare needs than people of all other age groups so that they may not require as many medical services or medications and many vaccinations for children are free of cost provided by the government under Universal Immunization Programme which can result in lower OOPE (Garg and Karan, 2018). For the elderly people the mean OOPE is higher as they are more prone to age-related diseases and lack health insurance coverage. For people belonging to backward communities, the mean OOPE is lower than for others because, as stated earlier, a majority of them were reported to be hospitalized in Government or public-run hospitals which have low cost of treatment. It can also possibly happen due to their unwillingness to avail healthcare facilities because of their lower income

or lower levels of awareness and education regarding healthcare which can eventually lead to lower health-seeking behaviour and thus lower OOPE.

Studies suggest that there may be a relationship between literacy levels and out-of-pocket healthcare expenditure. Individuals with lower levels of literacy are more likely to be poor having less income thereby utilizing public or government-run hospital for medical treatments leading to lower OOPE. The principal activities performed by persons also have an effect on OOPE. For people who are not working, pensioners or remittance recipients and other workers, the mean OOPE is higher because either these people are likely to belong to elderly population and might be affected due to age-specific diseases and might visit healthcare facilities frequently leading to higher OOPE. For wage labourers and domestic duties workers, the mean OOPE is lower in comparison with self-employed persons because they are less likely to seek healthcare facilities due to lack of awareness and lower income earned by them. Type of healthcare institution plays an important role in determining OOPE. Private and trust or NGO-run hospitals tend to have a high cost of treatment for ailments, hence mean OOPE for them is higher in comparison with public hospitals and is significant. The high OOPE in private hospitals has implications for access to healthcare and financial protection for patients. It can lead to catastrophic healthcare expenditure, where families may be pushed into poverty due to high healthcare costs. It also limits access to healthcare for the poor and marginalized who may not be able to afford private healthcare services.

V. Conclusion

In conclusion, the hospitalization patterns in India and studied states vary significantly across socio-economic characteristics of the respondents and the prevalence of different diseases. There is a higher utilisation of private healthcare facilities as people are less satisfied by the quality of care provided in public hospitals except for the socio-economically weaker sections of the society. The major source of finance to cover the costs of treatment during stay at hospital is the household's income and many people are not covered under any insurance scheme. This can increase the incidence of poverty and thereby deteriorate the standard of living. Comparing the studied states, this paper reveals that the hospitalization rates in Maharashtra are higher than in Uttar Pradesh across socio-economic characteristics of respondents. Maharashtra being a developed state has non–communicable diseases as the third major cause of hospitalization whereas Uttar Pradesh being a less developed state still faces the burden of communicable diseases. The average medical expenditure incurred during the stay at a hospital for any ailment is higher in Uttar Pradesh in comparison with Maharashtra.

The paper also documents the relationship between OOPE with various socio-economic and demographic variables. For India and two states, all the variables included in the analysis were significant except religion. It adds that there is heavy burden of infectious and non-communicable diseases and more reliability on private-run hospitals even in rural areas in India and in the selected states as well. A small proportion of people are covered under insurance schemes which can raise OOPE that can have a severe impact on the economy as a whole.

Based on these findings, India needs to increase its public investment in healthcare to improve infrastructure, medical equipment and staffing. This will help to improve the quality of care and access to healthcare services. Improving governance is critical in ensuring that healthcare services are delivered in an effective manner. Implementation of National Digital Health Mission can help in streamlining the access to health records, improving efficiency in healthcare delivery and promoting health insurance for all individuals regardless of their location and financial status. The government can promote health insurance and regulate the insurance industry to ensure that patients are not denied coverage for essential medical services. The findings also indicate the necessity to invest in preventive healthcare to reduce the incidence of NCDs and the need for expensive medical procedures and treatment along with the regulation of the prices of medical services and treatment provided by private hospitals. This can be done by setting price ceilings, capping mark-ups and fixing the prices of essential medicines and medical equipment. The government can establish standard

treatment protocols and pricing guidelines for medical procedures and treatments to reduce average medical expenditure for hospitalization cases.

Limitations

The study is not free from limitations which need to be taken care of while generalising the results. Firstly, it is influenced by under- or over- reporting in NSS. Secondly, OOPE variable was generated only for hospitalization cases excluding childbirth during the last 365 days. Last but not the least, only some of the socio- economic variables have been taken of for regression analysis due to data limitations. There may be several other variables that might affect OOPE.

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